

Remarks/Arguments

Applicant thanks the Examiner for allowing claim 19. Claims 1-6, 9-17, and 21-22 are currently pending and are rejected. The rejection of these claims is traversed, and the Examiner is respectfully requested to withdraw the rejections for reasons discussed below.

Claim 1 is amended to more clearly describe the present invention by noting that the second material is in powder form and that the first and second materials are metallurgically bonded by hot isostatic pressing. Claim 6 is amended to provide antecedent basis and to correct a typographical error. Claim 10 is amended to clarify the Applicant's invention, and claim 21 is amended to recite a step of removing the capsule. Claim 19 is amended to correct a typographical error by adding the letter "F" following the upper limit of the temperature range.

New claim 23, which is similar to claim 19 except that it omits some of the conditions of hot isostatic pressing, is also added.

No new matter is added by any amendment or new claim as support for these amendments can be found throughout the specification.

37 C.F.R. §1.75(c) Rejection

The Examiner rejects claim 22 as being an improper dependent claim for failing to further limit the claim from which it depends. Applicant respectfully disagrees and notes that claim 22 depends on claim 1. Claim 1 does not contain any limitations directed to the properties of the first or second material. Claim 22, however, is a dependent claim that requires the first material to be more wear resistant than the second material. Claim 22 further limits claim 1, and it is thus a proper dependent claim. Applicant also notes that claim 22 is not identical to claim 2 since claim 2 relates to corrosion resistance properties, not to wear resistance.

Section 112 Rejections

The Examiner rejects claims 6 and 10 pursuant to the second paragraph of 35 U.S.C. §

112, alleging that these claims are indefinite.

The amendment to claim 10 obviates this rejection as claim 10 now depends from claim 1, and the claim 10 now provides a Markush group of materials that may constitute the “first material.”

Regarding claim 6, Examiner asserts the term “high” is relative and that no definition of this term has been supplied. Applicant respectfully disagrees and points out that claim 6 describes a technique known in the art as “high velocity oxy-fuel spraying.” Thus, the term “high” is not used as an adjective to modify the term “velocity.” Rather, this is part of the name of a well known process. Applicant wishes to direct the Examiner’s attention to last paragraph of page 4 in the specification, where Applicant identifies “high velocity oxy-fuel spraying” as a spraying technique.

Applicant submits that the pending claims fully comply with 35 U.S.C. §112 and the Examiner is respectfully requested to withdraw rejections based upon on 35 U.S.C. §112.

Prior Art-Based Rejections

Claim 21

Claim 21 is rejected under 35 U.S.C. §102(b) as being anticipated by or, in the alternative, as being obvious over Becker et al.

Claim 21 is amended, and recites a method of making a component having the steps of providing a core and then applying a first material to a core. The first material and core are then substantially enclosed within a capsule, and then a second material is introduced into the capsule such that at least some of the first material is in contact with at least some of the second material. The first and second materials are bonded to one another, and then the capsule is removed to yield a component having a non-linear shape wherein the first material is more corrosion and/or wear resistant than the second material.

Becker’s method starts with a valve body, and the object of Becker is to line the valve

body with a different material that is more corrosion resistant than the material from which the valve body is made. A can is placed within a valve body, and then a metal powder is added between the valve body and can. A vacuum is drawn and the valve body is subjected to heat and pressure, which causes the metal powdered to consolidated into a solid lining that is bonded to the inner wall of the valve body. The final steps involve heat treatment and machining of the valve body.

Becker does not disclose or suggest all of the limitations of Applicant's invention. For example, Becker does not disclose applying a first material onto at least a portion of the outer surface of a core, and substantially enclosing the first material and the core within a capsule. Becker also fails to disclose or suggest the subsequent step of introducing a quantity of second material within the capsule such that at least some first material is in contact with at least some of the second material and then causing the first material to metallurgically bond to the second material. Finally, Becker does not disclose removing the capsule.

Even if Becker's valve body can be considered a "capsule," Becker fails to disclose removing the entire valve body after consolidating the metal powder into a solid lining. Becker's valve body cannot be considered a "capsule" in the context of the claimed invention because Becker's technique involves bonding the material to the valve body, thus forming a corrosion resistant lining for the valve body. Claim 21 requires that the first material, which is more corrosion and/or wear resistant than the second material, be applied to at least a portion of the core.

Claim 21 therefore represents allowable subject matter, and withdrawal of the rejection is respectfully requested.

Claims 1-5, 9-14 and 21-22

The Examiner rejects claims 1-5, 9-14 and 21-22 under 35 U.S.C. §102(b) as being anticipated by Ritter, which discloses a method of making cooling channels where a double wall structure employs a sacrificial channel filling means.

Applicant respectfully disagrees and requests that the Examiner withdraw this rejection.

Claim 1 is directed to a method of fabricating a component having the steps of applying a first material onto a sacrificial core, and enclosing the first material and sacrificial core within a capsule. A second material, which is in powder form, is introduced within the capsule, so that at least some of the first and second materials are in contact with one another. Finally, the first and second materials are metallurgically bonded together by hot isostatic pressing techniques.

Ritter discloses a method and structure that is entirely different than the claimed method. Ritter discloses a method for making a double-wall structure having an inner wall and outer wall, which is particularly useful in making gas turbine components. A channel forming means is placed between and separates the inner and outer walls. A sacrificial channel filling means is then placed into the channel forming means, and inner and outer walls are then hot pressed together, specifically, canning the double-wall assembly. The sacrificial channel filling means is later removed.

The method and structure disclosed in Ritter fails to meet every limitation in the claimed invention. Ritter fails to disclose a sacrificial core with a predetermined shape. Ritter also fails to disclose applying a first material onto a sacrificial core. Ritter further fails to disclose substantially enclosing the first material and sacrificial core within a capsule. Nor does it disclose introducing a second material, which is in powder form, within the capsule so that at least some of the first material is in contact with the second material. Accordingly, claim 1 distinguishes over Ritter.

Claims 2-5, and 9-14 all depend from claim 1 and thus contain all limitations of claim 1. Because Ritter fails to disclose every limitation of claim 1, it also fails to disclose the limitations of the dependent claims. Thus, the rejection of claims 2-5 and 9-15 should likewise be withdrawn.

Claims 15-17

The Examiner rejects claims 15-17 as being obvious over Ritter. The Examiner asserts that it would have been obvious to one of ordinary skill in the art to determine the time required by routine experimentation to determine HIP heat and pressure parameters.

Claims 15-17 ultimately depend from and contain all limitations of claim 1. For the reasons discussed above, Ritter fails to disclose or suggest the limitations of claim 1. There is likewise no disclosure or suggestion in Ritter of the subject matter of claims 15-17. The rejection of these claims should also be withdrawn.

Claim 6

Although the Examiner notes that claim 6 contains allowable subject matter, she tentatively rejects claim 6 under 35 U.S.C. §103(a) as being unpatentable over Ritter in view of van Nederveen.¹ The Examiner asserts it would have been obvious to utilize van Nederveen's spraying techniques with Ritter to coat materials to be compacted by HIP.

Claim 6 depends from claim 1 and contains all limitations thereof. Ritter's failure to anticipate claim 1 is explained above, and Van Nederveen's disclosure of a spraying technique fails to remedy any deficiencies of Ritter. Thus, the combination of these two references fails to disclose or suggest the subject matter of claim 6. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection.

CONCLUSION

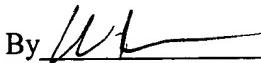
In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

¹ The Examiner is requested to clarify how this claim can be both allowable and rejected on the basis of 35 USC 103.

Applicant also submits herewith complete copies of US 4,137,619; EP 0 106 424; and EP 0 030 055 (cited in the May 6, 2003 Supplemental IDS), since the Examiner indicated that complete copies were not received by the USPTO.

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Respectfully submitted,

By 
William C. Geary III
Registration No.: 31,359
NUTTER McCLENNEN & FISH LLP
World Trade Center West
155 Seaport Boulevard
Boston, Massachusetts 02210-2604
(617) 439-2766
(617) 310-9766 (Fax)
Attorneys for Applicant

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